Mathematics Standards-Based Report Card Rubric – Fifth Grade

Domain: Numbers and Operation in Base Ten							
Indicator	**Standard**	**1 – Beginner Learner**	**2 – Developing Learner**	**3 – Proficient Learner**	**4 – Distinguished Learner**	**Evidence**	**Assessed**
Understand the place value system.	**NBT1** **NBT2**	In any multi-digit number, recognizes a digit in one place represents 10 times as much as it represents in the place to it right or 1/10 of what it represents in the place to its left by using manipulatives or visual models.	In any multi-digit number, recognizes a digit in one place represents 10 times as much as it represents in the place to it right or 1/10 of what it represents in the place to its left and uses whole number exponents to denote powers of 10.	In any multi-digit number, recognizes a digit in one place represents 10 times as much as it represents in the place to it right or 1/10 of what it represents in the place to its left and uses whole number exponents to denote powers of 10 and uses symbols to compare two powers of 10 expressed exponentially.	**N/A**	See NBT Assessment Folder	
Read, write, and compare decimals	**NBT3**	Student demonstrated limited understanding, **OR** independently and consistently demonstrates **ONE** of the following: Reads and writes decimals to the thousandths place using base-ten numerals. **OR** Reads and writes decimals to the thousandths place using number names. **OR** Reads and writes decimals to the thousandths place using expanded form. **OR** Compares two decimals to the thousandths place using <, >, and = to record the results of the comparison.	Student independently and consistently demonstrates **THREE** of the following: Reads and writes decimals to the thousandths place using base-ten numerals. **OR** Reads and writes decimals to the thousandths place using number names. **OR** Reads and writes decimals to the thousandths place using expanded form. **OR** Compares two decimals to the thousandths place using <, >, and = to record the results of the comparison.	Student independently and consistently demonstrates **ALL** of the following: Reads and writes decimals to the thousandths place using base-ten numerals. **AND** Reads and writes decimals to the thousandths place using number names. **AND** Reads and writes decimals to the thousandths place using expanded form. **AND** Compares two decimals to the thousandths place using <, >, and = to record the results of the comparison.	Student independently and consistently demonstrates understanding in all five parts described in the "proficient leaner" column and compares three or more decimals to the thousandths place using <, >, and = to record the results of the comparison.	See NBT Assessment Folder	
Rounding decimals	**NBT4**	Uses place value understanding to round decimals to nearest whole number.	Uses place value understanding to round decimals to the tenths place.	Uses place value understanding to round decimals to the hundredths place.	Uses place value understanding to round decimals to the thousandths place.	See NBT Assessment Folder	
Fluently multiply multi-digit whole numbers	**NBT5**	Fluently multiplies multi-digit whole numbers using the standard algorithm (or other	Fluently multiply multi-digit whole numbers using the standard algorithm (or other	Fluently multiply multi-digit whole numbers using the standard algorithm (or other	Fluently multiply multi-digit whole numbers using the standard	See NBT Assessment Folder	

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		strategies demonstrating understanding of multiplication) – 2 digits by 1 digit.	strategies demonstrating understanding of multiplication) – 2 digits by 2 digits.	strategies demonstrating understanding of multiplication) – 3 digits by 2 digits.	algorithm (or other strategies demonstrating understanding of multiplication) – 4 digits by 2 digits.		
Fluently divide using illustrations and models	**NBT6**	Divides whole numbers up to three-digit dividends and one-digit divisors which are multiples of ten using strategies based on place value, the properties of operations and/or the relationship between multiplication and division.	Divides whole numbers up to four-digit dividends and one-digit divisors which are multiples of ten using strategies based on place value, the properties of operations and/or the relationship between multiplication and division.	Divides whole numbers up to four-digit dividends and two-digit divisors which are multiples of ten using strategies based on place value, the properties of operations and/or the relationship between multiplication and division. **AND** Illustrates and explains the calculations by using equations, rectangular arrays, and area models. **AND** Checks reasonableness of answers by using multiplication or estimation.	**N/A**	See NBT Assessment Folder	
Use the four operations with decimals	**NBT7**	Student demonstrated limited understanding, **OR** independently and consistently demonstrates **TWO** of the following: Adds decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **OR** Subtracts decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations,	Student independently and consistently demonstrates **THREE** of the following: Adds decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **OR** Subtracts decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the	Student independently and consistently demonstrates **ALL** of the following: Adds decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **AND** Subtracts decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the	Student independently and consistently demonstrates understanding in all five parts described in the "proficient leaner" column and uses decimals to the thousandths place.	See NBT Assessment Folder	

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		and/or the relationship between addition and subtraction. **OR** Multiplies decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **OR** Divides decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **OR** Relates the strategy to a written method and explain the reasoning used.	relationship between addition and subtraction. **OR** Multiplies decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **OR** Divides decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **OR** Relates the strategy to a written method and explain the reasoning used.	relationship between addition and subtraction. **AND** Multiplies decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **AND** Divides decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations. **AND** Relates the strategy to a written method and explain the reasoning used.			

Domain: Operations and Algebraic Thinking							
Indicator	**Standard**	**1 – Beginner Learner**	**2 – Developing Learner**	**3 – Proficient Learner**	**4 – Distinguished Learner**	**Evidence**	**Assessed**
Write and interpret numerical expressions	**OA1** **OA2**	Use parentheses, brackets, or braces to write simple numerical expressions.	Use parentheses, brackets, or braces to write simple numerical expressions. **AND** Interpret simple numerical expressions without evaluating them.	Use parentheses, brackets, or braces to write and evaluate numerical expressions. **AND** Interprets numerical expressions without evaluating them.	Student independently and consistently demonstrates understanding in all five parts described in the "proficient leaner" column and solves numerical expressions in real world and mathematical problems.	See OA Assessment Folder	
Generate two numerical patterns using a given rule. Identify apparent relationships between corresponding terms by completing a function table or input/output	**OA3**	Uses a given rule to generate two numerical patterns.	Identifies the relationship between corresponding terms by completing a function or input/output table.	Uses a given rule to generate two numerical patterns. AND Identifies the relationship between corresponding terms by completing a function or input/output table. AND	Student independently and consistently demonstrates understanding in all five parts described in the "proficient leaner" column and creates real-world and mathematical	See OA Assessment Folder	

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table. Using the terms created, form and graph ordered pairs on a coordinate plane				Uses the terms created, form and graph ordered pairs on a coordinate plane	problems to be graphed in the first quadrant of a coordinate plane.		

Domain: Measurement and Data							
Indicator	**Standard**	**1 – Beginner Learner**	**2 – Developing Learner**	**3 – Proficient Learner**	**4 – Distinguished Learner**	**Evidence**	**Assessed**
Solving multi-step, real world problems with conversions	**MD1**	Identifies the correct conversion among different-sized standard units within a given measurement system.	Converts among different-sized standard measurement units within a given measurement system and solves single-step real world problems by using manipulatives or visual models.	Converts among different-sized standard measurement units within a given measurement system and solves multi-step real world problems by using manipulatives or visual models. **AND** Chooses the appropriate measurement unit based on the given context.	**N/A**	See MD Assessment Folder	
Use data in a line plot to solve fraction problems	**MD2**	Uses operations on fractions with <u>like</u> denominators of 2 and 4 to solve problems involving information in line plots.	Uses operations on fractions with denominators of 2 and 4 to solve problems involving information in line plots.	Uses operations on fractions with denominators of 2, 4, and 8 to solve problems involving information in line plots and interprets the solution in relation to the data.	Student independently and consistently demonstrates understanding in all five parts described in the "proficient leaner" column and uses fractions with a denominator of 10 and 12.	See MD Assessment Folder	
Recognizes and measure volume of solid figures	**MD3** **MD4**	Recognizes volume as an attribute of solid figures.	Recognizes volume as an attribute of solid figures and with a visual model understands that volume is measured using cubic units and can be found by packing a solid figure with unit cubes and counting them.	Recognizes volume as an attribute of solid figures and understands that volume is measured using cubic units and can be found by packing a solid figure with unit cubes and counting them. **AND** Represents the volume of a solid figure as "n" cubic units (cubic cm, cubic in, cubic ft, and improvised units). **AND**	**N/A**	See MD Assessment Folder	

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				Writes an equation that illustrates the unit cube pattern.			
Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	**MD5**	Given a visual model and the formulas for finding volume, solves real-world and mathematical problems by applying the formulas for volume.	Given a visual model, solves real-world and mathematical problems by applying the formulas for volume, relating volume to the operations of multiplication and addition, and recognizing volume is additive by finding the volume of solid figures of two non-overlapping parts.	Solves real-world and mathematical problems by applying the formulas for volume, relating volume to the operations of multiplication and addition, and recognizing volume is additive by finding the volume of solid figures of two non-overlapping parts.	**N/A**	See MD Assessment Folder	

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Domain: Numbers and Operations - Fractions							
Indicator	**Standard**	**1 – Beginner Learner**	**2 – Developing Learner**	**3 – Proficient Learner**	**4 – Distinguished Learner**	**Evidence**	**Assessed**
Add and subtract fractions and mixed numbers	**NF1**	Adds or subtracts two fractions with unlike denominators using only fractions with denominators of 2, 4, 5, or 10 in such a way as to produce an equivalent sum or difference with like denominators.* *below grade level	Adds or subtracts two fractions or mixed numbers with unlike denominators using only fractions with denominators of 2, 4, 5, or 10 in such a way as to produce an equivalent sum or difference with like denominators.* *below grade level	Adds and subtracts two fractions or mixed numbers with unlike denominators in such a way as to produce an equivalent sum or difference with like denominators.	Student independently and consistently demonstrates understanding in all parts described in the "proficient leaner" column and uses three or more fractions or mixed numbers.	See NF Assessment Folder	
Solve word problems involving addition and subtraction of fractions using benchmark fractions and number sense of fractions	**NF2**	Solves word problems involving addition and subtraction of fractions and mixed numbers using only denominators of 2, 4, 5, or 10 or benchmark fractions with unlike denominators, referring to the same whole by using visual fraction models or equations.	Solves word problems involving addition and subtraction of fractions and mixed numbers referring to the same whole in cases of unlike denominators by using visual fraction models or equations.	Describes a model to represent word problems involving addition and subtraction of fractions and mixed numbers referring to the same whole in cases of unlike denominators by using visual fraction models or equations. **AND** Assesses and justifies reasonableness using benchmark fractions and number sense of fractions.	**N/A**	See NF Assessment Folder	
Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. Example: 3 5 can be interpreted as "3	**NF3**	Solves word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using manipulatives or visual models to identify between which two whole numbers the answer lies.	Solves word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. **AND** Interprets the fraction as division of the numerator by the denominator.	Solves word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. **AND** Interprets the fraction as division of the numerator by the denominator. **AND** Identifies a simple model representing the situation **AND** Describes a model to represent the situation.	Student independently and consistently demonstrates understanding in all parts described in the "proficient leaner" column and solves multi-step real world problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.	See NF Assessment Folder	

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divided by 5 and as 3 shared by 5".							
Multiplies a fraction or whole number by a fraction. Finds the area of a rectangle by tiling it with unit squares	**NF4**	Multiplies a whole number by a fraction.	Multiplies a fraction by a fraction using visual fraction models.	Multiplies a fraction by a fraction. **AND** Uses context for the mathematics, including rectangular areas.	Student independently and consistently demonstrates understanding in all parts described in the "proficient leaner" column and creates context for the mathematics, including rectangular area.	See NF Assessment Folder	
Interprets multiplication as scaling	**NF5**	Interprets multiplication scaling by comparing the size of a product to the size of one factor on the basis of the size of the second factor by performing the indicated multiplication where one factor is a fraction less than one using manipulatives or visual models.	Interprets multiplication scaling by comparing the size of a product to the size of one factor on the basis of the size of the second factor without performing the indicated multiplication where one factor is a fraction less than one.	Interprets multiplication scaling by comparing the size of the product to the size of one factor on the basis of the size of the second factor without performing the indicated multiplication, focusing on one factor being a fraction greater than or less than one.	**N/A**	See NF Assessment Folder	
Multiplying with fractions	**NF6**	Solves real world problems involving multiplication of a fraction and a fraction by using visual fraction models or equations to represent the problem.	Solves real world problems involving multiplication of a fraction and a fraction, and a fraction and a whole number by using visual fraction models or equations to represent the problem.	Solves real world problems involving multiplication of a fraction and a fraction, a fraction and a whole number, and a fraction and a mixed number by using visual fraction models or equations to represent the problem.	Student independently and consistently demonstrates understanding in all parts described in the "proficient leaner" column and solves multi-step real world problems involving multiplication of a fraction and a fraction, a fraction and a whole number, and a fraction and a mixed number by using visual fraction models or equations to represent the problem.	See NF Assessment Folder	
Divide unit fractions by whole numbers and whole numbers by unit fractions.	**NF7**	Divide a whole number or a unit fraction by a unit fraction using visual fraction models.	Interpret the division of a whole number or a unit fraction by a unit fraction using visual fraction models.	Solves real world problems involving the division of unit fractions by whole numbers	Student independently and consistently demonstrates understanding in all parts	See NF Assessment Folder	

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				and division of whole numbers by unit fractions AND Uses visual fraction models and equations to represent the problem.	described in the "proficient leaner" column and solves multi-step real world problems involving the division of unit fractions by whole numbers and division of whole numbers by unit fractions.		

Domain: Geometry							
Indicator	**Standard**	**1 – Beginner Learner**	**2 – Developing Learner**	**3 – Proficient Learner**	**4 – Distinguished Learner**	**Evidence**	**Assessed**
Graphing on the coordinate plane	**G1** **G2**	Represents real-world mathematical problems by locating points in the first quadrant of a coordinate plane.	Represents real-world mathematical problems by locating points in the first quadrant of a coordinate plane. **AND** Represents real-world mathematical problems by graphing points in the first quadrant of a coordinate plane.	Represents real-world mathematical problems by locating points in the first quadrant of a coordinate plane. **AND** Represents real-world mathematical problems by graphing points in the first quadrant of a coordinate plane. **AND** Interprets coordinate values of points in the context of the situation.	Student independently and consistently demonstrates understanding in all parts described in the "proficient leaner" column and locates and graphs points in the second quadrant.	See G Assessment Folder	
Understand and classify 2D figures in a hierarchy	**G3** **G4**	Identifies two-dimensional figures based on properties. **AND** Classifies two-dimensional figures based on their attributes.	Classifies two-dimensional figures in a hierarchy based on properties. **AND** Understands that shared attributes categorize two-dimensional figures.	Classifies two-dimensional figures in a hierarchy based on properties. **AND** Understands that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. **AND** Uses appropriate tools to determine similarities and differences between categories and subcategories.	N/A	See G Assessment Folder	

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Domain: Standards of Mathematical Practice							
Indicator	**Standard**	**1 – Rarely**	**2 – Sometimes**	**3 – Usually**	**4 – Always**	**Evidence**	**Assessed**
Make sense of problems and persevere in solving them.	**SMP.1**	Student is rarely able (or unable) to figure out the meaning of a problem and is rarely able to independently determine an appropriate strategy/tool to use to solve the problem. Constant teacher prompting is usually required.	Student inconsistently explains to himself/herself the meaning of a problem and/or is inconsistently able to independently determine an appropriate strategy to use to solve problems. Student needs prompting by the teacher on a regular basis.	Student usually explains to himself/ herself the meaning of a problem and determines an appropriate strategy/ tool to use to solve grade-level appropriate problems.	Student self-starts and is consistently able to make the problem make sense to him/her using prior knowledge. The student can determine an appropriate strategy to use to solve grade-level appropriate problems. Student can explain the meaning of a problem and look for ways to solve it. The student may use concrete objects or pictures to help them conceptualize and solve problems.		Q1* Q2, Q3, Q4
Reason abstractly and quantitatively	**SMP.2**	Student is rarely able to connect a quantity to a written symbol and demonstrate a clear understanding of the meaning of quantity as represented in a problem solved using objects, pictures, drawings or actions.	Student is inconsistently able or may require teacher prompting to connect a quantity to a written symbol and demonstrate a clear understanding of the meaning of quantity as represented using objects, pictures, drawings or actions.	Student usually connects a quantity to a written symbol and demonstrates a clear understanding of the meaning of quantity as represented using objects, pictures, drawings or actions.	Student consistently and independently connects a quantity to a written symbol and demonstrates a clear understanding of the meaning of quantity as represented using objects, pictures, drawings or actions. Student recognizes that a number represents a specific quantity and connects the quantity to written symbols.		Q1* Q2, Q3, Q4
Construct viable arguments and critique the reasoning of others	**SMP.3**	Student is rarely able to explain his/her mathematical reasoning and/or respond to others' thinking. Student is rarely able to explain his/her thinking or participate in mathematical discussions.	Student is inconsistently able to explain his/her mathematical reasoning and/or respond to others' thinking.	Student can usually explains his/her mathematical reasoning and responds to others' thinking.	Student consistently and independently explains his/her mathematical reasoning and responds to others' thinking.		Q1* Q2, Q3, Q4

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Model with mathematics	**SMP.4**	Student rarely represents problem situations in multiple ways. Including numbers, words, drawing pictures, using objects, acting out, making a chart, list, or graph, etc. Teacher prompting is usually required.	Student sometimes represents problem situations in multiple ways. Including numbers, words, drawing pictures, using objects, acting out, making a chart, list, or graph, etc. Teacher prompting is frequently required.	Student usually represents problem situations in multiple ways. Including numbers, words, drawing pictures, using objects, acting out, making a chart, list, or graph, etc. Teacher prompting is sometimes required.	Student consistently represents problem situations in multiple ways. Including numbers, words, drawing pictures, using objects, acting out, making a chart, list, or graph, etc. Teacher prompting is rarely necessary.		Q1* Q2, Q3, Q4
Use appropriate tools strategically	**SMP.5**	Student is rarely able to consider strategies and tools available to solve a problem or decide which tool/ strategy would be helpful.	Student sometimes considers available tools and strategies available to solve a problem with teacher prompting or examples and decides which tools/strategies might be helpful.	Student usually considers available tools and strategies when solving a problem and decides which tools/strategies might be helpful.	Student consistently and independently considers available tools and strategies (including estimation) when solving a problem and decides which tools/strategies might be helpful.		Q1* Q2, Q3, Q4
Attend to precision	**SMP.6**	Student begins to explain their mathematical reasoning with others but does not use clear and precise language, or student is unable to communicate mathematical reasoning.	Student is sometimes able to communicate mathematical reasoning using clear and precise language.	Student inconsistently communicates mathematical reasoning using clear and precise language.	Student is able to consistently communicate mathematical reasoning using clear and precise language.		Q1* Q2, Q3, Q4
Look for and make use of structure	**SMP.7**	Student is rarely able to see the pattern or structure in any given problem. Student rarely adopts mental math strategies based on patterns (making 5, using ten frame and seeing 10, counting on, etc.). Teacher prompting is usually required.	Student is sometimes able to see the pattern or structure in any given problem. Student sometimes adopts mental math strategies based on patterns (making 5, using ten frame and seeing 10, counting on, etc.). Teacher prompting is frequently required.	Student usually looks closely to discover a pattern or structure in any given problem. Student usually adopts mental math strategies based on patterns (making 5, using ten frame and seeing 10, counting on, etc.). Teacher prompting is sometimes required.	Student consistently looks closely to discover a pattern or structure in any given problem. Student consistently adopts mental math strategies based on patterns (making 5, using ten frame and seeing 10, counting on, etc.). Teacher prompting is rarely necessary.		Q1* Q2, Q3, Q4
Look for and express regularity in repeated reasoning	**SMP.8**	Student rarely notices repetitive actions in counting and computation, etc. Teacher prompting is usually required.	Student sometimes notices repetitive actions in counting and computation, etc. Teacher prompting is frequently required.	Student usually notices repetitive actions in counting and computation, etc. Teacher prompting is sometimes required.	Student consistently notices repetitive actions in counting and computation, etc. Students continually checks his/her work by asking themselves, “Does this make sense?”		Q1* Q2, Q3, Q4